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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,664

08/26/2003

Seong-Taek Hwang

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08/24/2005

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EXAMINER

HUGHES, DEANDRA M

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/648,664

Applicant(s)

HWANG ET AL.

Examiner

Deandra M. Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it exceeds the 150 word limit. Correction is required. See 37 CFR 1.72(b).

### *Claim Objections*

2. Claim 1 is objected to because of a minor typographical error. In line 14, 'form' should be 'from'. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (fig. 1 of applicant's disclosure) in view of Hwang (US 6,535,324 filed Sep. 26, 2000).

With regard to claim 1, the Admitted Prior Art discloses a wideband optical fiber amplifier *for amplifying and outputting wideband optical signals, the wideband optical signal including C-band optical signals and L-band optical signals*, comprising;

- a first amplification section (#130) *for amplifying and outputting the wideband optical signals including the C-band optical signals and the L-band optical signals and for outputting amplified spontaneous*

*emissions generated in a process of amplifying the wideband optical signals;*

- *a C/L splitter (#110) for separating the wideband optical signals amplified by the first amplification section into the C-band optical signals and the L-band optical signals and then outputting separated C-band optical signals and separated L-band optical signals;*
- *a second amplification section (#140) for amplifying and outputting the separated L-band optical signals;*
- *an optical signal coupler (#115) for combining the separated C-band optical signals output from the C/L splitter with the separated L-band optical signals amplified by the second amplification section and then outputting the combined optical signals;*
- *and an optical circulator (#111) having a first port for receiving the wideband optical signals, a second port for causing the wideband optical signals to be output and for causing spontaneous emission generated from the first amplification section to be input, a third port for causing the spontaneous emissions to be provided as pumping lights for the second amplification section and for causing the separated L-band optical signals amplified by the second amplification section to be input*

The Admitted Prior Art does not specifically disclose a fourth port for causing the L-band optical signals input into the third port to be output to the optical signal

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*coupler. However, Hwang teaches the use of a wavelength selective four port optical circulator (fig. 2). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to use a four port optical circulator for the advantage of wavelength specific beam combination or separation.*

With regard to claim 2, the Admitted Prior Art discloses an optical isolator *(#113) for blocking optical signals advancing opposite to a direction in which the wideband optical signals advance between the first amplification section and the C/L splitter.*

With regard to claim 3, the Admitted Prior Art discloses a the first amplification section including:

- *at least one pumping diode (#131) for generating pumping lights so as to amplify the wideband optical signals input into the first amplification section;*
- *a first rare-earth element doped optical fiber (#133), pumped by the pumping lights, for amplifying the wideband optical signals which are input into the first rare-earth element doped optical fiber;*
- *wavelength selection coupler (#132) for inputting the pumping lights generated from the at least one pumping diode into the first rare-earth element doped optical fiber on an input side of the first rare-earth element doped optical fiber.*

With regard to claim 4, the Admitted Prior Art discloses a second amplification section *(#140)* that includes:

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- at least one pumping diode (#141a or #141b) *for generating pumping lights so as to amplify the separated L-band optical signals input into the second amplification section;*
- a second rare-earth element doped optical fiber (#145), pumped by the pumping lights, *for amplifying the separated L-band optical signals which input into the second rare-earth element doped optical fiber,*
- and a wavelength selection coupler (#143a or #143b) *for inputting the pumping lights generated from the at least one pumping diode into the second rare-earth element doped optical fiber on an input side of the second rare-earth element doped optical fiber.*

With regard to claims 5-6, an optical amplifier is inherently used for an optical communication network.

The Examiner considers the claim language identified in italics above to be a functional limitation, i.e. intended use. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. Since the structural limitations have been met by the prior art, the Examiner has reason to believe that the function limitation can be performed by the prior art structure. See MPEP 2114.

\*\*\*To change to functional language to a structural limitation, the Examiner suggests amending the phrases that begin with, “**for...**” to “**configured for...**” or “**configured to...**”.

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***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art discloses wideband optical amplifiers that employ beam combination or separation.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Deandra M Hughes  
Examiner  
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